



# Health Protection Report

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### New guidance on post exposure prophylaxis for HIV

The Expert Advisory Group on AIDS (EAGA) has recently published revised guidelines [1] on the use of post-exposure prophylaxis (PEP) for HIV following occupational exposure which should be read in conjunction with local needlestick injury policy. This document replaces both the guidelines issued in February 2004 [2] and the interim update following the withdrawal of Viracept (nelfinavir) issued in July 2007 [3] and is consistent with guidelines produced by the British Association for Sexual Health and HIV (BASHH) for the provision of PEP following sexual (non-occupational) exposure [4].

There have been several sections clarified and amended, together with the addition of a new annex (Annex H), which summarises the evidence from animal and clinical studies on the maximum interval between exposure and starting PEP.

Some of the key changes to the guidelines are highlighted below.

- ▶ PEP should be initiated as soon as possible after the exposure, ideally within an hour, following a careful risk assessment. In a change to previous guidelines, PEP is now generally not recommended after 72 hours post-exposure.
- ▶ The recommended follow-up period after occupational exposure to HIV has been shortened and is now a minimum of 12 weeks after the HIV exposure or, if PEP has been taken, a minimum of 12 weeks from when PEP was stopped.
- ▶ The PEP regimen for starter packs has been revised and simplified: Truvada (300mg tenofovir and 200mg emtricitabine (FTC)) once a day plus Kaletra (200mg lopinavir and 50mg ritonavir) twice a day is now recommended.
- ▶ The guidelines have clarified the implications of the *Human Tissue Act 2004* and the *Mental Capacity Act 2005* with regard to testing incapacitated source (adult) patients for serious communicable diseases without consent.
- ▶ A recommendation for good practice is that hospitals should have capacity to obtain a source patient HIV test result within eight hours (ideally) and no longer than 24 hours after blood is obtained. This is to minimise healthcare workers' exposure to PEP drugs where the source is found to be uninfected.

Prevention of avoidable exposure is crucial [5] and all healthcare workers should be educated on the risks from occupational exposures and the importance of seeking urgent medical advice. Employers should ensure that local PEP policies enable healthcare workers to have immediate 24 hour access to advice on PEP, to drugs and to appropriate support.

The HPA operates enhanced surveillance for occupational exposure to bloodborne viruses [6]. Data are collected on the types of exposures, the staff involved and circumstances surrounding exposure events to inform and develop national prevention policies. The scheme monitors the implementation of national HIV PEP policy, and informed this revision of the guidance. Occupational health physicians and clinicians involved in the care of healthcare workers exposed to bloodborne viruses are encouraged to report these incidents (in confidence) to the Health Protection Agency's Centre for Infections, Colindale, or Health Protection Scotland.

## References

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## World Rabies Day 2008: awareness is the best defence against rabies

Sunday 28 September is World Rabies Day – a global initiative led by the Alliance for Rabies Control to raise awareness and understanding about the importance of rabies prevention worldwide. The primary message of World Rabies Day is that rabies is a preventable disease, and yet kills 55,000 people needlessly each year, half of which are children under the age of 15 [1].

The disease is transmitted to humans mainly by bites, but exposure may also occur through contamination of broken skin or mucous membranes with saliva from an infected animal or bat. Infection with rabies virus causes an acute encephalomyelitis, with two classic forms: furious (encephalitis) and paralytic (dumb).

In many countries rabies is primarily a disease of children, who are particularly at risk due to their close contact with dogs, the major global source. This is because children are more likely to suffer multiple bites and scratches to the face and head, both of which carry a higher risk of contracting rabies. In addition children are often unaware of the danger that dogs transmit rabies and may not tell their parents when a bite, lick, or scratch has occurred from an infected animal.

Since virtually all human rabies is caused by dog bites, vaccination of canine populations has proved extremely successful in reducing its incidence in humans. In Mexico, for example, a 92% reduction in the prevalence of canine rabies due to vaccination was accompanied by an 82% reduction in the number of reported human deaths from the infection [2].

For the UK population the key public health issue is for those who may be at risk because of their work (see below) or as a result of travelling to countries where rabies is circulating in animals. Travellers should stay away from stray or unattended animals and, if bitten in a country where rabies is present, wash the wound immediately and seek medical advice; if a person has not had treatment in that country they should still seek medical advice immediately on return, even if the bite was weeks before.

The UK has been free of indigenous classical animal rabies for over a century but occasional cases have occurred in quarantined animals (most recently earlier this year [3]), creating a hazard that warrants vaccination of those working with imported animals.

The last UK case of indigenously acquired classical rabies in a human was in 1902. Cases occurring since then have all been acquired abroad, usually through dog bites.

More recently European Bat Lyssavirus 2 (EBLV2), a rabies-like virus, has been isolated in bats in the UK, and in 2002 a man who was a licensed bat handler died in Scotland from infection with EBLV2 [4]. As a result the Department of Health recommended that all bat handlers, whether licensed or not, should be vaccinated against rabies as a precaution. In addition individuals who are bitten or scratched by a bat within the UK should seek medical attention as soon as possible to determine whether they need post-exposure prophylaxis (PEP).

### Further information

About PEP: see Chapter 27, *Immunisation against infectious disease* ("The Green Book") at: [http://www.hpa.org.uk/web/HPAwebFile/HPAweb\\_C/1216022456494](http://www.hpa.org.uk/web/HPAwebFile/HPAweb_C/1216022456494)

Expert advice and supply of vaccine and immunoglobulin: from the HPA Centre for Infections (tel 020 8200 4400).

About World Rabies Day at the official web site ([www.worldrabiesday.org](http://www.worldrabiesday.org)) and in the Alliance for Rabies Control's September 2008 newsletter at [www.rabiescontrol.net/ARCnewsletter9.pdf](http://www.rabiescontrol.net/ARCnewsletter9.pdf)

### References

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### Immunisation

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### **COVER programme: April to June 2008: Quarterly vaccination coverage statistics for children aged up to five years in the United Kingdom**

*This report of the COVER programme presents quarterly coverage data for children in the United Kingdom (UK) who reached their first, second or fifth birthday during the evaluation quarter, April to June 2008.*

This report coincides with the publication by the NHS Information Centre for Health and Social Care of 2007-08 annual coverage data by Primary Care Trust (PCT) for children aged 12 months, 24 months and five years, for England [1].

Children who reached their first birthday in the quarter (born April to June 2007) were the fourth quarterly birth cohort to have been scheduled to receive their primary vaccinations according to the new schedule introduced on 4 September 2006 [2] (three doses diphtheria, tetanus, acellular pertussis, polio, and *Haemophilus influenzae* type b vaccine (DTaP/IPV/Hib vaccine)) two doses each of meningococcal serogroup C conjugate vaccine (MenC vaccine) and pneumococcal conjugate vaccine (PCV), completing between August and October 2007.

Children who reached their second birthday in the quarter (born April to June 2006) would have been scheduled to receive their third dose primary vaccinations between August 2006 and October 2006 and first measles, mumps, and rubella (MMR) vaccination between May and October 2007. These children are the third quarterly birth cohort to be routinely scheduled to receive a booster dose of Hib and MenC vaccine (given as a combined Hib/MenC vaccine) at 12 months, and a booster dose of PCV vaccine at 13 months of age [2].

Children who reached their fifth birthday in the quarter (born April to June 2003) would have been scheduled to receive their third dose primary vaccinations between August and October 2003, their first MMR between May and October 2004, their pre-school diphtheria, tetanus, acellular pertussis, inactivated polio (DTaP/IPV) booster and second dose MMR from August 2006 onwards, and a catch-up dose of a Hib-containing vaccine from September 2007 [3].

#### **Methods**

Methods of data collection for COVER, sentinel MMR coverage and neonatal hepatitis B vaccination coverage are described on the HPA website at:  
<http://www.hpa.org.uk/webw/HPAweb&Page&HPAwebAutoListDate/Page/1209454766294?p=1209454766294>.

#### **Results**

Data were received from all Health Boards (HBs) in Scotland and Northern Ireland, Administrative Regions (ARs) in Wales, and 148/152 Primary Care Trusts (PCTs) in England. Scotland's national coverage data will be published on 30 th September and therefore tables 1

to 3 do not contain individual figures for Scotland, although Scottish data have been included to produce UK estimates.

Four London PCTs using the Child Health Interim Application (CHIA) child health system were unable to provide any data this quarter. Problems with producing coverage data using the CHIA system have been reported previously [4] and ongoing data quality concerns and caveats have been issued by nine London PCTs. Six reporting PCTs (five in London) have not published data for PCV booster at 24 months due to data quality concerns. These factors contribute to the continuing need for caution in evaluating the vaccination programme in London.

Individual PCT data for this quarter are published on the HPA website at [http://www.hpa.org.uk/infections/topics\\_az/cover/default.htm](http://www.hpa.org.uk/infections/topics_az/cover/default.htm).

### Coverage at 12 months

Excluding Scotland, 44 of the 155 participating PCTs/HBs/ARs (28%) achieved at least 95% coverage at 12 months for three doses of diphtheria, tetanus, pertussis, polio and Hib vaccine (DTaP/IPV/Hib3) and 51 (26%) at least two doses of MenC vaccine. In this fourth evaluation of PCV coverage at 12 months 40 PCTs/HBs/ARs (26%) achieved at least 95%. At least 90% coverage at 12 months for DTaP/IPV/Hib3, MenC2 and PCV2 was achieved for all countries and all English SHAs apart from London.

UK coverage at 12 months for DTaP/IPV/Hib3 decreased by 0.3% compared with the previous quarter, MenC remained the same, and PCV increased by 0.3% (Table 1) [4]. Country-specific comparisons for coverage at 12 months show Northern Ireland maintained coverage above 96% for both DTaP/IPV/Hib and MenC and PCV coverage increased 3.1% to 95.2%. Coverage in Wales decreased by 0.7% to 94.9% for DTaP/IPV/Hib and by 0.6% for both MenC and PCV to 94.6%. In England DTaP/IPV/Hib decreased by 0.2% to 90.7%, MenC coverage decreased 0.1% to 90.0% and PCV coverage increased 0.3% to 89.9% (range 94.3% in the West Midlands, 76.7% in London) (table 1) [4].

**Table 1. Completed primary immunisations (all antigens) by 12 months: April to June 2008**

Strategic Health Authorities (SHAs)/Country	PCT/HB/AR* † (total)	DTaP/IPV/Hib3 %	MenC2 %	PCV2 %
<b>English SHAs</b>				
North East	12 (12)	94.3	93.9	93.6
North West	24 (24)	93.4	92.1	93.0
Yorkshire and the Humber	14 (14)	92.5	92.1	92.0
East Midlands	9 (9)	92.7	92.8	92.4
West Midlands	17 (17)	94.3	94.4	94.3
East of England	14 (14)	93.5	93.1	91.8
London	27 (31)	78.9	76.9	76.7
South Central	9 (9)	94.2	93.0	93.4
South East Coast	8 (8)	90.3	90.1	90.3
South West	13 (14)	92.8	93.3	93.6
<b>England (Total)</b>	<b>148 (152)</b>	<b>90.7</b>	<b>90.0</b>	<b>89.9</b>
<b>Wales</b>	<b>3 (3)</b>	<b>94.9</b>	<b>94.6</b>	<b>94.6</b>
<b>Northern Ireland</b>	<b>4 (4)</b>	<b>96.5</b>	<b>96.4</b>	<b>95.2</b>
<b>Scotland §</b>	<b>14 (14)</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>
<b>United Kingdom</b>	<b>169 (173)</b>	<b>91.5</b>	<b>90.9</b>	<b>90.8</b>

\* Primary Care Trusts/health boards/administrative regions

† Number of trusts reporting DTaP/IPV/Hib3 coverage

§ Scottish data will be available from 30th September at <http://www.show.scot.nhs.uk/scieih/>

## Coverage at 24 months

Excluding Scotland, 87 PCTs/HBs/ARs (56%) achieved at least 95% coverage at 24 months for DTaP/IPV/Hib3, and 83 (54%) for MenC. One PCT in West Midlands achieved 95% for MMR at 24 months.

UK coverage at 24 months remained the same as for the January to March 2008 quarter for DTaP/IPV/Hib, was 1.5% lower for MenC and 0.5% lower for MMR, whereas PCV and Hib/MenC boosters increased by 1.3% and 1.9% respectively (table 2) [4]. Country-specific comparisons for coverage at 24 months for DTaP/IPV/Hib show Northern Ireland and Wales both achieved at least 96% whereas England coverage remained at 93.6%, although seven regions achieved at least 95% (table 2). Infant MenC exceeded 95% in Northern Ireland and Wales; overall coverage for England was down 2% to 90.9% compared to the January to March 2008 quarter ranging from 96.6% in the North East to 78% in London (table 2) [4].

Coverage for both PCV and Hib/MenC boosters at 24 months, reported for the third time this quarter, increased for all countries with Wales achieving the highest coverage for PCV (82.8%) and for Hib/MenC (89.5%) (table 2). MMR coverage at 24 months decreased in all countries; by 1% in Wales and Northern Ireland to 86.4% and 88.8% respectively, and by 0.6% in England to 82.4% where coverage for English regions (excluding London) ranged from 80.7% to 87.7% (table 2).

**Table 2. Completed primary immunisations (all antigens) by 24 months: April to June 2008**

Strategic Health Authorities (SHAs)/Country	PCT/HB/AR* † (total)	DTaP/IPV /Hib3 %	Infant MenC%	PCV Booster%	Hib/MenC%	MMR1%
<b>English SHAs</b>						
North East	12 (12)	96.0	96.6	78.4	85.7	87.0
North West	24 (24)	95.9	88.4	77.7	85.4	85.3
Yorkshire and the Humber	14 (14)	94.1	91.6	78.1	82.2	84.1
East Midlands	9 (9)	95.5	95.7	75.8	73.9	85.9
West Midlands	17 (17)	96.2	94.5	84.3	87.6	87.7
East of England	14 (14)	95.0	95.9	74.8	80.2	82.1
London	27 (31)	85.8	78.0	57.2	58.9	70.0
South Central	9 (9)	95.5	94.4	79.8	86.7	85.3
South East Coast	8 (8)	92.8	92.5	70.7	81.0	80.7
South West	13 (14)	95.4	95.4	79.5	86.9	86.1
<b>England (Total)</b>	<b>148 (152)</b>	<b>93.6</b>	<b>90.9</b>	<b>74.9</b>	<b>79.4</b>	<b>82.4</b>
<b>Wales</b>	<b>3 (3)</b>	<b>96.9</b>	<b>95.7</b>	<b>82.8</b>	<b>89.5</b>	<b>86.4</b>
<b>North. Ireland</b>	<b>4 (4)</b>	<b>97.8</b>	<b>96.7</b>	<b>79.3</b>	<b>70.2</b>	<b>88.8</b>
<b>Scotland §</b>	<b>14 (14)</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>
<b>United Kingdom</b>	<b>169 (173)</b>	<b>94.3</b>	<b>91.8</b>	<b>76.8</b>	<b>79.9</b>	<b>83.6</b>

\* Primary Care Trusts/health boards/administrative regions.

† Number of trusts reporting DTaP/IPV/Hib3 coverage

§ Scottish data will be available from 30th September at <http://www.show.scot.nhs.uk/scieh/>

## Coverage at five years

All countries and English regions, except for London, achieved 90% coverage for DTP/Pol3, Hib3 and MenC, with the North East reporting at least 95% coverage for all three (table 3). MMR1 coverage increased by 0.6% compared to the previous quarter in England and Wales (87.7% and 90.3% respectively) and remained the same in Northern Ireland (95.3%). Pre-school boosters (DTaP/IPV and MMR2) coverage increased in all countries and all English regions except for South West; in England coverage for both boosters was up 0.9%, in Wales coverage increased by 1.6% for MMR2 and 1% for DTaP/IPV.

In London coverage for all antigens at five years increased at least 3% when compared to the previous quarter [4]. Despite this, coverage was still lower than corresponding values for other English regions. In particular, coverage for MMR2 was 55.6% and DTaP/IPV was 54.5%, at least 20% lower than coverage in most other regions.

**Table 3. Completed primary immunisations and boosters (all antigens) by 5 years: April to June 2008**

Strategic Health Authorities (SHAs)/country	PCT/HB/AR* † (total)	Primary				Pre-school booster	
		DTP/Pol3 %	Hib3 %	MenC %	MMR1 %	MMR2 %	DTaP/IPV %
<b>English SHAs</b>							
North East	12 (12)	95.8	95.6	96.3	92.7	84.9	85.6
North West	24 (24)	95.7	94.7	94.7	91.5	79.6	80.5
Yorkshire & Humber	14 (14)	93.3	92.5	92.7	89.5	79.1	79.7
East Midlands	9 (9)	94.9	93.6	94.8	91.2	81.9	85.4
West Midlands	17 (17)	95.8	94.7	95.5	91.0	81.5	86.5
East of England	14 (14)	93.3	92.6	93.5	85.9	76.1	80.7
London	27 (31)	84.4	83.9	80.9	78.1	55.6	54.5
South Central	9 (9)	93.2	92.2	92.3	89.2	77.1	83.1
Sth. East Coast	8 (8)	92.4	92.3	92.3	86.2	73.7	79.7
South West	14 (14)	95.8	95.2	94.9	90.8	80.8	86.7
<b>England (Total)</b>	<b>147 (152)</b>	<b>92.8</b>	<b>92.0</b>	<b>91.8</b>	<b>87.7</b>	<b>75.2</b>	<b>78.2</b>
<b>Wales</b>	<b>3 (3)</b>	<b>95.8</b>	<b>95.4</b>	<b>93.5</b>	<b>90.3</b>	<b>81.2</b>	<b>86.8</b>
<b>Northern Ireland**</b>	<b>4 (4)</b>	<b>96.7</b>	<b>92.9</b>	<b>94.2</b>	<b>95.3</b>	<b>88.9</b>	<b>91.4</b>
<b>Scotland §</b>	<b>14 (14)</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>
<b>United Kingdom</b>	<b>168 (173)</b>	<b>93.5</b>	<b>92.6</b>	<b>92.5</b>	<b>88.7</b>	<b>76.4</b>	<b>79.6</b>

\* Primary Care Trusts/health boards/administrative regions

† Number of trusts reporting DTP/Pol3 coverage

§ Scottish data will be available from 30 September at <http://www.show.scot.nhs.uk/scie/h/>

\*\* Figures corrected 2 October 2008.

## MMR sentinel surveillance scheme coverage in England

For methods of data collection see

<http://www.hpa.org.uk/webw/HPAweb&Page&HPAwebAutoListDate/Page/1209454766294?p=1209454766294>

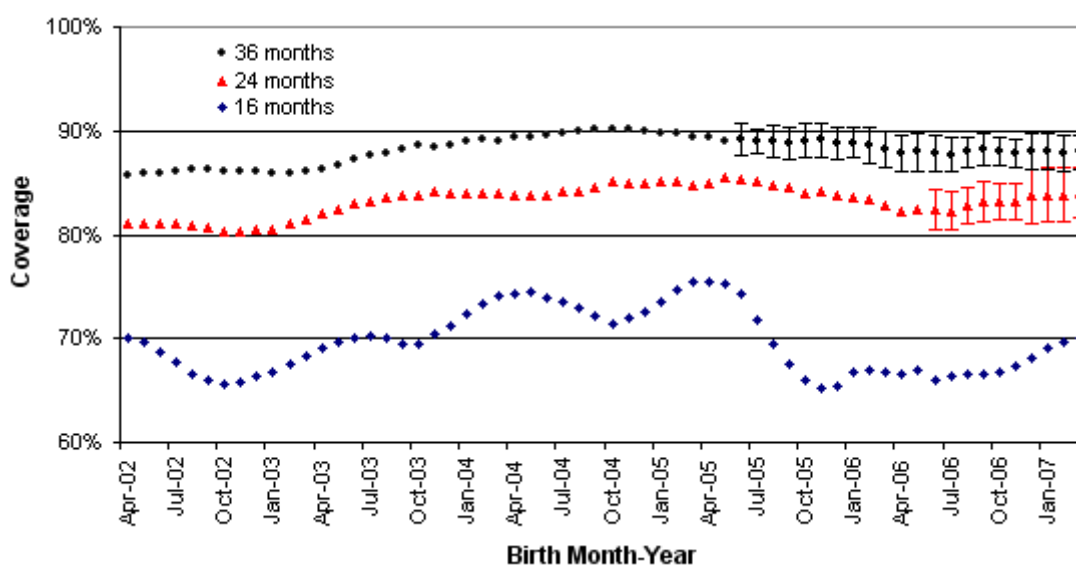
Data collected from June 2008 to August 2008 for children in the four age cohorts is summarised in table 4. The range for the three months was from 68.5 to 71.5 % at 16 months, 77.4 to 80.2 % at 20 months, 81.4% to 83.0 % at 24 months, and 88.3 % to 89.8% at 36 months).

**Table 4. Monthly sentinel estimates of measles, mumps rubella (MMR) coverage at 16, 20, 24 and 36 months: June 2008 to August 2008**

Evaluation month	Proportion of children vaccinated at each age				
	Number of PCT/trusts	16 months	20 months	24 months	36 months
June 2008	36	68.5	77.4	81.4	88.4
July 2008	35	69.9	80.2	82.2	89.8
August 2008	38	71.5	80.2	83.0	88.3

The figure shows observed and projected MMR coverage at 16, 24 and 36 months in England for birth cohorts from January 2002 to December 2006. Projections of coverage at 24 and 36 months were made using the most recent coverage data for the same birth cohort and an estimate of the proportion,  $p$ , of those unvaccinated at each earlier age who were subsequently vaccinated by the later age. The proportion was estimated using the most recent 18 months data where final coverage was known. 95% confidence intervals were calculated based on the variability of  $p$  in the past data. The estimates of  $p$  were as follows: 46.8 % for 16 to 24 months, 59.9 % for 16 to 36 months, 18.8 % for 20 to 24 months, 42.7 % for 20 to 36 months and 31.6 % for 24 to 36 months. Projections make the assumption that  $p$  remains constant over the period of the projection. Data at 20 months is not shown to simplify the graph as the line is close to that plotted for the 24 month data.

**Figure. Observed and projected MMR coverage at 16, 24, and 36 months by birth year and month in England**



Note. Data shown are five-month moving averages. Projections are shown with 95% confidence intervals

## Neonatal hepatitis B vaccine coverage data in England

The data presented in table 5 represents coverage for three doses of hepatitis B vaccine in those infants born to hepatitis B surface antigen (HBsAg) positive mothers who reached the age of one year in this quarter (i.e. those born between April and June 2007), and coverage of four doses of vaccine in infants who reached two years of age (i.e. those born between April and June 2006).

**Table 5. Neonatal hepatitis B coverage in England: April to June 2008**

Region	Returns with 12 month data	12 month denominator	Coverage at 12 months	Returns with 24 month data	24 month denominator	Coverage at 24 months
North East	9 (12)	4	0%	10 (12)	9	56%
North West	20 (24)	74	57%	20 (24)	44	59%
Yorkshire & the Humber	13 (14)	34	71%	13 (14)	33	48%
East Midlands	6 (9)	20	80%	6 (9)	15	47%
West Midlands	17 (17)	46	50%	17 (17)	42	36%
East of England	11 (14)	42	57%	11 (14)	54	46%
London	23 (31)	197	75%	22 (31)	155	50%
South Central	8 (9)	18	94%	8 (9)	28	57%
South East Coast	8 (8)	14	50%	8 (8)	29	10%
South West	11 (14)	20	25%	11 (14)	9	11%
<b>Total</b>	<b>126 (152)</b>	<b>469</b>	<b>65%</b>	<b>126 (152)</b>	<b>418</b>	<b>46%</b>

Data was received for 126/152 (83%) PCTs in England, 6% more than reported in the last quarter, but similar to the number reporting in October to December 2007 [4,5]. Some of the returns may relate to only part of the PCT due to mergers [6]. Coverage in England for three doses in those aged one year decreased 5% to 65% [4] (Table 5). Although this is lower than the coverage obtained for routine antigens at this age (table 1) the population at risk are highly mobile and high uptake is difficult to achieve. By far the largest number of infants at risk is in London where coverage was above the national average at 75% at 12 months. Coverage in England for four doses in those aged 24 months decreased by 3% to 46% compared to the last quarter [4].

## Commentary

In September 2007 a *Haemophilus influenzae* type b (Hib) vaccination catch-up programme targeting children born between 13 March 2003 and 3 September 2005 was launched. The programme is due to run until the beginning of March 2009 and aims to vaccinate children who were too young to have a Hib booster as part of the 2003 Hib catch-up programme, and too old to have received the new Hib/MenC booster vaccine at 12 months of age following its introduction in September 2006. [3]

Children who reached their fifth birthday in the quarter evaluated in this report (born April to June 2003) would have been routinely scheduled to receive their pre-school diphtheria, tetanus, acellular pertussis, inactivated polio (DTaP/IPV) booster, and second-dose MMR from August 2006 onwards. They would have also have been eligible to be offered a booster dose of a Hib-containing vaccine as part of the Hib catch-up campaign from September 2007. This would have been either Hib/MenC vaccine if they had already had their pre-school booster or DTaP/IPV/Hib if they had not. The majority would probably have needed an additional appointment to have Hib/MenC.

Increased coverage was observed for both pre-school boosters (DTaP/IPV and MMR2) in all countries and all English regions (except for South West) this quarter. This may be due to the Hib catch-up campaign which offered additional opportunities for vaccination in this age group. In England coverage for both boosters was up 0.9% (to 75.2% for MMR2 and 78.2% for DTaP/IPV), in Wales coverage increased by 1.6% for MMR2 to 81.2% and 1% for DTaP/IPV to 86.8%, and in Northern Ireland MMR2 increased by 2.8% to 91.4%.

Children who reached their first birthday in the quarter (born April to June 2007) were the fourth quarterly birth cohort recorded by COVER to have been scheduled to receive their primary vaccinations according to the new schedule introduced on 4 September 2006, and children reaching their second birthday in the quarter (born April to June 2006) were the third quarterly birth cohort recorded by COVER to be offered at 12 months and 13 months respectively the new booster vaccines, Hib/MenC and PCV, also introduced September 2006.

UK coverage for both these booster vaccines evaluated at 24 months increased this quarter. PCV coverage was 76.8%, up 1.3% on the previous quarter, and Hib/MenC booster was 79.9%, up 1.9%. [4] Vaccine coverage data for new vaccines added to the immunisation schedule needs to be evaluated with caution. Some child health systems are still experiencing difficulties with scheduling (including the call, recall function), recording and/or producing 24 month coverage data for children routinely receiving the Hib/MenC and PCV booster doses introduced in September 2006. Six reporting PCTs (five in London ) have not published PCV booster coverage at 24 months due to data quality concerns. In addition, the child health system for Northern Ireland has recently upgraded its software to include scheduling of the new PCV and Hib/MenC immunisations. Prior to the introduction of this development, returns from GP practices may have been less timely and complete for PCV and Hib/MenC than for scheduled immunisations and this would ultimately have impacted on coverage. However, once the new scheduling software has been in use for a while, it is expected that coverage will increase accordingly .

UK MMR coverage at 24 months fell again this quarter, down 0.5% to 83.6%. This is the fifth successive quarterly decrease, down 2% on the same time last year [7]. However, increased estimates for sentinel MMR coverage at 16 months recorded between June to August this year suggest that routine 24 month coverage may begin to increase early next year (table 4 and figure). This increase, and any impact of the ongoing MMR catch-up programme announced in August [8], should be detected in future COVER reports.

## Relevant links for country-specific coverage data are as follows:

### **England**

<http://www.ic.nhs.uk/statistics-and-data-collections/health-and-lifestyles/immunisation>

### **Northern Ireland**

<http://www.cdscni.org.uk/surveillance/Coveragestats/default.asp>

### **Scotland**

<http://www.show.scot.nhs.uk/scieh/>

### **Wales**

<http://www.wales.nhs.uk/sites/page.cfm?OrgID=368&PID=2278>

## Other relevant links

[http://www.hpa.org.uk/infections/topics\\_az/cover/default.htm](http://www.hpa.org.uk/infections/topics_az/cover/default.htm)

<http://www.mmrthefacts.nhs.uk/>

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## Polio eradication: the global situation and up-dated information for the UK, 2007

The Global Polio Eradication Initiative was established in 1988 at a time when over 350,000 children were paralysed by polio each year in more than 125 countries.

By 2007, endemic countries – those that have never interrupted polio transmission – had been reduced to a historic low of four: Afghanistan, India, Nigeria and Pakistan. A total of 1208 cases occurred in these four countries in that year. An additional 107 cases occurred following importation into eight other African and Asian countries that had previously interrupted transmission [1].

In 2007, stakeholders in polio eradication launched a new, intensified effort to achieve eradication. By the end of that year, the incidence of polio had been reduced by 35% and cases due to type 1 wild poliovirus had fallen by 81% [2]. Most outbreaks in re-infected countries had been stopped. However, by 17 September 2008, 1210 polio cases had still been reported globally, of which 1135 were in the four endemic countries (table 1).

**Table 1. Global polio case breakdown by country, 27 September 2008**

Country	Year-to-date 2008	Year-to-date 2007	Total in 2007
India	420	223	874
Nigeria	655	188	285
Pakistan	44	13	32
Sudan	5	0	1
CAR	2	0	0
DRC	4	28	41
Afghanistan	16	9	17
Chad	16	5	22
Nepal	5	0	5
Angola	25	10	8
Niger	13	2	11
Benin	2	0	0
Burkina Faso	1	0	0
Ethiopia	2	0	0
Myanmar	0	11	11
Somalia	0	8	8
<b>TOTAL</b>	<b>1210</b>	<b>497</b>	<b>1315</b>

Source: WHO Global Polio Eradication Initiative, <http://www.polioeradication.org/casecount.asp>

## United Kingdom overview

The United Kingdom (UK) remains polio-free. However on-going transmission of wild poliovirus elsewhere in the world, albeit in a limited fashion, and pockets of low vaccine coverage in the UK, provides the on-going potential for re-introduction into the UK. This highlights the importance of both maintaining high population immunity in all sectors of society and the capacity to rapidly detect and respond to a possible importation.

### *Vaccine coverage*

Since September 2004, the UK has been using inactivated polio vaccine (IPV). The schedule remains the same with three doses given in infancy (at two, three and four months) with a reinforcing dose pre-school (aged 3.5 to five years) and prior to school leaving (aged 15 years).

Vaccination coverage for three doses of oral polio vaccine (OPV)/IPV at two years of age remains high, although is slightly below the 95% target for England (table 2). Coverage is 95% and above in seven English regions and Wales, Scotland and Northern Ireland and above 90% in two of the remaining three regions. Coverage in London is below 90%; reflecting a combination of factors, including high population mobility, problems with call-recall and inaccuracy of data systems. New data systems are currently being put in place and so data was not available for seven PCTs in London in 2006/7 and six in 2007/08.

**Table 2. Vaccine uptake (%) for 3rd dose of OPV/IPV in children aged two years in the UK 2000-2007/08**

	2000/01	2001/02	2002/3	2003/04	2004/05	2005/06	2006/07	2007/08
North East	96	95	95	95	95	95	96	96
North West	95	95	95	95	94	95	95	96
Yorkshire & Humber	95	94	94	94	93	94	93	94
East Midlands	97	96	96	96	96	96	95	95
West Midlands	96	95	94	95	95	95	95	96
East of England	96	94	95	95	94	95	95	95
London	90	89	88	88	87	88	86	85
South East Coast*	94	94	93	94	94	94	91	93
South Central†						94	95	95
South West	96	96	96	96	94	96	96	96
<b>England</b>	<b>95</b>	<b>94</b>	<b>94</b>	<b>94</b>	<b>93</b>	<b>94</b>	<b>93</b>	<b>94</b>
<b>Wales</b>	<b>97</b>	<b>95</b>	<b>96</b>	<b>96</b>	<b>95</b>	<b>96</b>	<b>97</b>	<b>97</b>
<b>Scotland</b>	<b>98</b>	<b>98</b>	<b>98</b>	<b>97</b>	<b>97</b>	<b>98</b>	<b>98</b>	<b>98</b>
<b>N. Ireland</b>	<b>97</b>	<b>97</b>	<b>96</b>	<b>96</b>	<b>97</b>	<b>97</b>	<b>97</b>	<b>98</b>

\* South East prior to 05/6.

† From 05/6

### Data on polio compatible cases

No cases of paralytic poliomyelitis were reported in the UK in 2007 (table 3), with the last case occurring in 2000 in an OPV vaccine recipient.

**Table 3: Summary of cases of paralytic poliomyelitis in UK, 1985-2007**

Year	Vaccine/ Recipient	Vaccine/ Contact	Acquired overseas	Unknown (compatible)	Total
1985	1	–	2	–	3
1986	4	1	2	1	8
1987	–	–	–	–	–
1988	1	1	1	–	3
1989	1	1	–	–	2
1990	4	–	–	–	4
1991	–	1	–	1	2
1992	2	1	–	2	5
1993	2	–	1*	1	4
1994	1	1	–	–	2
1995	1	1	–	–	2
1996	1	–	–	–	1
1997	1	1	–	–	2
1998	1	–	–	–	1
1999	1	–	–	–	1
2000	1	–	–	–	1
2001	–	–	–	–	–
2002	–	–	–	–	–
2003	–	–	–	–	–
2004	–	–	–	–	–
2005	–	–	–	–	–
2006	–	–	–	–	–
2007	–	–	–	–	–
<b>Total</b>	<b>22</b>	<b>8</b>	<b>6</b>	<b>5</b>	<b>41</b>

\* This is a case of polio in a UK resident but it was acquired and diagnosed in India and no poliovirus was isolated for this case.

### Data on enterovirus surveillance

In addition to clinical surveillance, confirmed enterovirus infections continue to be reported by laboratories in England and Wales (table 4). Enteroviruses include polio and non-polio viruses, the latter include Coxsackie and Echoviruses. These infections are mostly asymptomatic or mildly symptomatic, although in a few instances can result in aseptic meningitis or encephalitis. As in recent years, 2007 was also a low year with no summer epidemic of enterovirus meningitis. No isolates of polio have been reported in 2007 and the reduction in isolates of poliovirus is likely to be explained by the change in the routine UK immunisation schedule from OPV to IPV in 2004.

**Table 4: Laboratory reports of confirmed enteroviruses isolates to HPA (England and Wales), 1995-2007**

Year	Coxsackie		Echovirus		Polio		Untyped		Total	
	Total	Neuro	Total	Neuro	Total	Neuro	Total	Neuro	Total	Neuro
1995	214	62	625	207	181	2	36	16	1056	287
1996	611	241	303	104	188	1	138	40	1240	386
1997	235	50	176	43	224	5	78	10	713	108
1998	191	42	181	58	190	8	123	41	685	149
1999	193	60	127	29	188	20	203	63	711	172
2000	81	24	341	165	100	6	323	139	845	334
2001	71	15	512	239	89	3	322	165	994	422
2002	89	16	145	32	97	–	119	27	450	75
2003	69	8	137	17	67	–	144	29	417	54
2004	79	12	64	10	45	1	103	13	291	36
2005	74	1	26	1	11	–	94	15	205	17
2006	26	5	34	7	–	–	63	9	123	21
2007*	14	4	17	1	–	–	55	24	86	29
<b>Total</b>	<b>1933</b>	<b>536</b>	<b>2671</b>	<b>912</b>	<b>1380</b>	<b>46</b>	<b>1746</b>	<b>567</b>	<b>7730</b>	<b>2061</b>

\* provisional

Under the national standard operating procedure, all poliovirus isolates and enterovirus identifications from cases with neurological symptoms are referred to the HPA Virus Reference Division (VRD) for molecular characterisation. In 2004 and 2005, samples that were appropriate for virus isolation (stools, throat swabs, cell culture isolates) were subjected to virus isolation followed by neutralization assays. Molecular detection and characterisation were carried out in parallel. The results showed 100% correlation between the tests, and an increased rate of detection and characterization through the use of molecular methods.

Since 2005, therefore, all isolates and clinical specimens have been routinely tested by RT-PCR. Isolates that are negative by RT-PCR with clinical information suggestive of poliomyelitis or reported by other laboratories as polioviruses are also tested in cell culture.

**Table 5: Samples received at ERNVL for enterovirus typing**

Year	Samples tested by PCR	Non-Polio Enterovirus detected	Poliovirus Detected	Testing for poliovirus antibody in serum
2005	419	218	10	329
2006	593	356	1	447
2007	479	295	0	495
<b>Total</b>	<b>1491</b>	<b>869</b>	<b>11</b>	<b>1271</b>

A child presented with a clinical picture of a polio-like illness following minor surgery a month earlier. The child was part of Steiner community where routine vaccination is refused. Molecular tests were consistent with an enterovirus group B infection (non-polio).

A case of bilateral symmetrical paraesthesia was reported in a middle age person with recent travel to India. Stool and throat swab were negative on PCR for enterovirus.

## Update on polio containment in the UK

A total of 2569 organisations, comprising National Health Hospital Trusts (including Public Health Laboratories), private hospitals, private laboratories, biotechnology companies, government laboratories, environmental companies, universities, research institutes and water companies were identified as storing or potentially storing poliovirus. All 2569 (100%) organisations replied to the first questionnaire, and replies have now been received from 100% of those who were sent the second questionnaire. The UK survey is now complete, and a final report was sent to WHO Regional Office for Europe.

In 2007, an audit of the 127 sites identified on the inventory began. The UK Health and Safety Executive (HSE) is undertaking visits to the sites over a three-year rolling programme, giving priority to those laboratories working with wild poliovirus, and those laboratories not previously inspected. Inspectors initially confirm the presence of poliovirus or material potentially containing virus, as indicated on the original containment form. The inspection examines laboratory facilities (including freezers and fridges) to determine that the laboratory complies with WHO requirements for Bio safety Level 2. Inspection results are recorded on a pro forma, which is sent to the Health Protection Agency where the database is held. Failure of a laboratory to meet the requirements will result in the issue of a non-compliance note which is sent to the National Containment Committee (NCC) for action. The HSE provide the NCC with an annual report of progress. A second action of the inspectors is to promulgate the poliovirus eradication programme and information on the importance of maintaining current information on stocks of virus and material containing virus to duty holders. Wherever possible, HSE inspectors are encouraging laboratories to dispose of such samples.

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